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**Patentanwälte**  
**Postfach 26 01 62**  
**W-8000 München 26(DE)**(54) **Semiconductor device having ventilative insulating films.**

(57) A semiconductor device of multilevel wiring construction where a plurality of wiring layers (103,203) are deposited so as to contain an interlevel insulating layers therebetween. The interlevel insulating layers of a semiconductor device according to the present invention have sandwich-like constructions, in which the lowermost film is the first silicon oxide film (104) deposited by plasma vapor deposition method, the intermediate spin-coated film (105) fabricated by means of spin-coating and curing method, and the uppermost film is the second silicon oxide film (106) made by means of plasma vapor deposition method. The first silicon oxide film has high film density, while the second oxide film has low film density.

In the semiconductor device according to the present invention, the outgas generated at sputtering of the second wiring layers from the spin-coated film is released through the second silicon oxide film and does not concentrate in the through holes. Therefore, no corrosion of the wiring layers and no degradation of the step coverage occur; with the result that the disconnection of the second wiring layers in the through-holes are prevented.

According to the present invention, no disconnection of wire in the through-holes occurs even in the through-holes of diameter less than 1 micrometer, while in the prior art the disconnections of wires

are indispensable for such small through-hole.

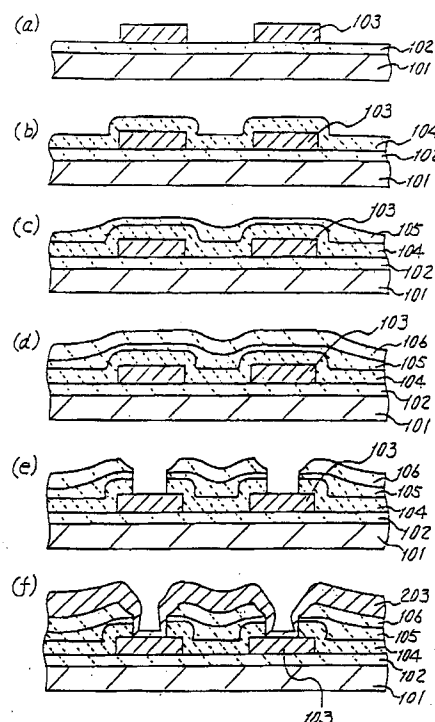


FIG. 1

EP 0 456 240 A3



## Application Number

**EP 91 10 7544'**

DOCUMENTS CONSIDERED TO BE RELEVANT					
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)		
A	WO-A-8 702 828 (MOTOROLA) * abstract; figure 3 * * page 8, line 11 - line 16 *	1,5	H 01 L 23/29 H 01 L 23/485		
A	WO-A-8 807 762 (EASTMAN KODAK) * page 4, line 28 - page 5, line 5 *	1,5			
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)		
			H 01 L		
The present search report has been drawn up for all claims					
Place of search		Date of completion of search	Examiner		
The Hague		13 February 92	GREENE S.K.		
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